# REVIEWS AND ABSTRACTS.

James, W. O. and Clapham, A. R. The Biology of Flowers. Oxford University Press, 1935. Publ. at 8s. 6d. net. pp. viii and 115. 71 illustrations.

This is a book that will fill a decided gap in modern botanical literature. While in the text books of the first half of the nineteenth century, the flower and its structure occupied most of the space devoted to the higher plants, there has been since a tendency to emphasise lower plants and the physiological aspects almost to the exclusion of all else.

In many elementary courses the flower is treated from the standpoint of a classification which cannot be appreciated from an examination of a limited number of types and its importance as a reproductive structure lost sight of. One result is that the study of flowers often appears as a curious puzzle in permutations and combinations which is interesting neither to teacher nor pupil. The commonly followed methods have, moreover, resulted in a stereotyped method of procedure and description which is reproduced unchanged from one generation of students to the next.

If for no other purpose than to improve and correct this attitude, this volume should be generally welcomed as bringing a more true understanding of the flower and its functions.

The book commences with a description of the flower and its various parts, considered throughout as constituting a more or less efficient mechanism for reproduction. The descriptions are all based on studies possible by dissection and the use of a hand lens. Microscopic details are sedulously avoided. The technical terms used are carefully defined and when first introduced are printed in heavier type. There has been a judicious selection and unnecessary terms are avoided. An explanatory glossary is also given at the end of the book.

The descriptions of structure are correlated with a study of the development as it can be traced without recourse to the microscope. The stress that is laid on development is a point much to be commended. If buds were more often examined along with, and in explanation of, the fully formed flower much of the ordinary attitude of regarding structure as part of a jigsaw puzzle of nature, might be combated and removed.

A rather full chapter on pollination follows in which are included notes on some types of insect visitors and their structure and habits. The desirability of cross-pollination and the means by which it is attained are well set out. Indeed the whole of this part provides an interesting and well balanced account of a subject so often treated either wholly teleologically or merely as a series of disconnected instances. It is perhaps unfortunate that no mention is made of the experimental work on pollination carried out in America.

A descriptive account of the fruit, seed, and embryo follow.

The second portion of the volume, pp. 40-113, is devoted to descriptions of individual types of flower of which there are 29. These types are arranged according to the methods of pollination. The examples are selected from the British flora and as such most will be unfamiliar to the South African reader, but they can well serve as excellent models on which to base a similar study of our own most interesting flowers.

A most prominent feature of the book is the excellence of the illustrations nearly all of which are of full page size. All of them are of a kind to be taken as models for both teacher and pupil. Some of the drawings are taken from Church's well known though rather rare book. but many are original.

The book is one well worth study and one that should do much to enhance one of the most fascinating sides of botanical study.

Goosens, A. P. and Theron, J. J. An Anatomical Study of *Themeda triandra* Forsk. (Rooigras). S. Afr. Journ. Sci. XXXI. 254. 1934.

*Themeda triandra* is the most important pasture grass in South Africa. In this paper the anatomy of the root, stem, and leaf is described in some detail. No very striking or unexpected features of structure are recorded. The authors demonstrate that it is possible to distinguish a number of varieties by utilising a combination of external features and anatomical characters, more especially those of the epidermal cells of the leaf. Eight varieties are recognised and a key is given for their identification.

Goossens, A. P. Notes on the Anatomy of Grass Roots. Trans. Roy. Soc. S. Afr. XXIII, 1. 1935.

The anatomical structure of the roots of a number of the commoner grasses of the High Veld are described.

In its young stages the cells of the surface of the root and the root hairs become mucilaginous. The mucilage becomes clogged with soil particles and often forms a persistent sheath round the root which is protective.

The endodermis round the stele has no passage cells and forms an impermeable isolating sheath.

The character of the cortex in the root varies according to the moisture, temperature, and oxygen content, of the soil.

Young, E. M. Note on the Occurrence of a Series of Bisporangiate Cones in *Pinus insignis*, Douglas (*P. radiata* Don). S. Afr. Journ. Sci. XXXI. 1934.

Trees found at Witpoortje showed branches which had terminal female cones with a number of smaller cones below. The lowest of these small cones were staminate, the upper ones intermediate and bisporangiate.

The correct name for the tree is *Pinus radiata* Don. The commonly used name, *P. insignis,* is invalid, and should be dropped.

Rimington, C. *Psilocaulon absimile* N.E.Br. as a Stock Poison. S. Afr. Journ. Sci. XXXI., 184. 1934.

*Psilocaulon absimile* is a succulent not uncommon in parts of the Karroo and is poisonous to stock.

An alkaloid, piperidine, has been found in it, and is regarded as responsible for the symptoms shown by animals.

Piperidine occurs in the plant as the hydrochloride. This alkaloid has not before been found in plants as such but only in combination. *Psilo-*

*caulon* is suggested as a possible source of supply for the substance which is at the present time very expensive.

LEVYNS, M. R. Notes on Nomenclature in some Members of Compositae. Trans. Roy. Soc. S. Afr. XXIII., 91. 1935.

A number of alterations in names are shown to be necessary.

*Stoebe tortilis* DC is *Disparago ericoides* Gaertn.

*St. cinerea* Thunb. must be restricted to the shelter-loving plant of the Cape Peninsula.

*St. plumosa* Thunb. is the name for the plant called *St. cinerea* in Fl. Cap. and elsewhere.

*Elytropappus scaber* Levyns is the name for what has often been called *E. glandulosus*.

The real *E. glandulosus* Less. is a local species collected in few localities and not recently.

*E. gnaphaloides* Levyns is applied to cover the plants variously known as *E. canescens* DC, *E. ambiguus* DC, and others.

(See also Levyns, A Revision of *Elytropappus*. Journ. S.A. Botany, I., p. 89. 1935.)

TAYLOR, G. Notes on Labiatae II. The Genus *Acrotome*, Benth. Journ. Bot. LXXIII., 1. 1935.

A revision of the genus with descriptions of two new species, one of which is from South Africa. In all eight species are recognised, five of which occur within the Union. A key to these species is given. The new species are *A. angustifolia* which is known from the Transvaal, Bechuanaland, and Northern Rhodesia, and *A. mozambiquensis* from Portuguese East Africa. The genus is entirely confined to the southern parts of Africa.

LLOYD, F. E. *Utricularia Rendlei*: a new species from Victoria Falls. Journ. Bot. LXXIII., 40. 1935.

The species was collected on the occasion of the visit of the British Association for the Advancement of Science to the Falls in 1929. The new species is described and figured and the points of difference between it and the closely allied *U. subulata*, L. from America are tabulated.

BAKER, E. G. New Genus of Leguminosae from Northern Rhodesia. Journ. Bot. LXXIII., 160. 1935.

The new genus *Gamwellia* contains one species, *G. flava*, found in the Abercorn district. *Gamwellia* is allied to *Lotononis* but has diadelphous stamens and leaf-like stipules. The plant is figured.

BREMEKAMP. C. E. B. The Origin of the Flora of the Central Kalahari. Scientific Results of the Vernay-Lang Kalahari Expedition, March to September, 1930. Ann. Transv. Mus., XVI., III., 443. 1935.

This is a critical review and discussion of the present position of knowledge of the flora of the Kalahari, based on the results of the Vernay-Lang expedition along with previous work. The main conclusions may be summarised as follows :—

(1) The desert period has obliterated all traces of the original flora. The desert flora itself has no remnants except possibly a few halophytes. It is possible that *Welwitschia, Acanthosicyos,* and other plants in the Namib may be remnants of the desert flora.

(2) There is no botanical evidence to suggest a pluvial period following the desert one.

(3) The present flora has arrived from the north and north-east. Migration from the east has not been important.

(4) The country west and south of the Central Kalahari was populated by the plants arriving there early and driven out by the later and more aggressive forms.

(5) The Central Kalahari, with western Southern Rhodesia, and the north-western Transvaal, ought to form a separate sub-province of the East and South African savanna.

Bremekamp, C. E. B. and Obermeyer, A. A. Sertum Kalahariense : a list of the Plants collected. Scientific Results of the Vernay-Lang Kalahari Expedition, March to September, 1930. Ann. Transvaal Mus. XVI., III., 399. 1935.

This is a list of the identifications of the plants collected by the expedition. One new genus and 25 new species are described, and a number of new combinations are made. The new genus is *Neuradopsis*, which contains three species, two of them new, the third transferred from *Neurada.* The new species here are *N. grieloidea* and *N. bechuanensis.* The other new species are :— *Marsilia villosa. Lagerosiphon tsotsorogensis. Ottelia Vernayi, Tragus arenarius, Panicum bechuanense, Eragrostis Stentiae, E. Vansonii. Nerine gaberonensis, Nymphaea Vernayi, Cleome bechuanensis. C. sulphurea, Sesbania rostrata. Cardiospermum alatum. Hibiscus rivularis. Caralluma Vansonii, Heliotropium malodorum, Sesamum gibbosum, Cyphia bechuanensis. Lobelia (Metzleria) tsotsorogensis, Sphaeranthus kalahariensis, Pentzia laxa,* and *Berkheyopsis Langii.*

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